

AMENDMENT UNDER 37 C.F.R. § 1.111
APPLICATION NO. 09/740,939
ATTORNEY DOCKET NO. Q62126

processing, as received signals, the echoes provided by the plurality of pulses at said one end of the channel;

wherein the generating is performed so that the frequency bands of adjacent ones of the plurality of pulses overlap.

D 2 3. (Amended two times) A method according to claim 1, wherein the overlapping of the frequency bands is such that, after reflection and said processing, the frequency spectrum of the plurality of pulses is practically flat.

4. (Amended two times) A method according to claim 1, further comprising: providing each of the plurality of pulses with a given amplification or attenuation, and providing pulses of the received signals with the corresponding attenuation or amplification.

5. (Amended two times) A method according to claim 1, further comprising subjecting the received signals to a synchronous averaging.

6. (Amended two times) A method according to claim 1, further comprising subjecting the received signals to a matched filtering.

7. (Amended two times) A method according to claim 1, further comprising suppressing noise, in medium and high frequency pulses of the received signals, by estimating the noise for the part of the received signal after the channel end echo, and determining a threshold above which the received signals are taken into consideration.

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8. (Amended two times) A method according to claim 1, wherein the processing of the received signals is performed so that the received signals are processed in their own frequency bands, and then added.

9. (Amended) A method according to claim 8, further comprising detecting the variation with time of one or more of:

the modulus of the received signals, and
the frequency of the received signals.

10. (Amended two times) A method according to claim 1, wherein the generating of the plurality of pulses is performed so as to generate complex analytical pulses.

11. (Amended two times) A method according to claim 1, further comprising selecting the frequency bandwidth and the amplitude of low frequency pulses of the received signals according to the channel attenuation and its compliancy in terms of egress.

12. (Amended two times) A method according to claim 1, wherein the plurality of pulses are generated sequentially or simultaneously.

13. (Amended two times) A method according to claim 1, wherein at least one of said properties being determined comprises the locations of defects of the channel.

14. (Amended two times) A method according to claim 1, wherein
said transmission channel comprises a telephone line between a central office and a subscriber,
and
the processing of the received signals is performed at the central office.

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18. (Amended three times) An apparatus for testing the properties of transmission channels between a central office and a subscriber, comprising a time domain reflectometry test circuit, wherein said time reflectometry test circuit comprises:

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a pulse generator generating a plurality of pulses, at one end of the line, covering different frequency bands, and

an echo processor processing the echoes provided by these pulses at the same end of the channel;

wherein the different frequency bands of adjacent ones of the pulses are overlapping.

19. (Amended two times) An apparatus according to claim 18, wherein the different frequency bands are overlapping.

20. (Amended two times) An apparatus according to claim 19, wherein said echo processor processes the reflected pulses such that the frequency spectrum is practically flat after reflection and processing.

21. (Amended two times) An apparatus according to claim 18, wherein the pulse generator includes amplification or attenuation for each generated pulse, and said apparatus includes complementary attenuation or amplification for each received pulse.

22. (Amended two times) An apparatus according to claim 18, further comprising a synchronous averager for the received signals.

23. (Amended two times) An apparatus according to claim 18, further comprising a matched filter for the received signals.

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24. (Amended two times) An apparatus according to claim 18, further comprising amplification or attenuation for each generated pulse and complementary attenuation or amplification for each received pulse.

25. (Amended two times) An apparatus according to claim 18, further comprising a processor processing the received signals for each frequency band and an adder adding the processed signals.

26. (Amended two times) An apparatus according to claim 25, further comprising a detector detecting the modulus of the received signals and/or the variation with time of the frequency of the received signals.

27. (Amended two times) An apparatus according to claim 18, further comprising a receiver receiving complex analytical pulses.

28. (Amended two times) An apparatus according to claim 18, further comprising a selector selecting the frequency bandwidth and the amplitude of the low frequency pulses according to the line attenuation and its compliancy in terms of egress.

29. (Amended two times) An apparatus according to claim 18 wherein said pulse generator generates the pulses sequentially or simultaneously.

31. (Amended two times) An apparatus according to claim 18, wherein said transmission channels are telephone lines comprising copper pairs between a central office and a subscriber.
